



*Better Buildings Residential Network
Peer Exchange Call Series*

Low-Income Residential Energy Efficiency Best Practices – Part 2

April 13, 2023

Agenda and Ground Rules

- Moderator
 - **Jonathan Cohen**, Better Buildings Residential Network, DOE Residential Buildings Integration Program (RBI)
- Agenda Review and Ground Rules
- Residential Network Overview and Upcoming Call Schedule
- Opening Poll
- Featured Speakers
 - **Angie Bivens**, Franklin Energy
 - **Ben Cooper**, Stop Waste
 - **Jackie Zusi-Russell**, Earth Advantage
- Open Discussion
- Closing Poll and Announcements

Ground Rules:

1. **Sales of services and commercial messages are not appropriate** during Peer Exchange Calls.
2. Calls are a safe place for discussion; **please do not attribute information to individuals** on the call.

The views expressed by speakers are their own, and do not reflect those of the Dept. of Energy.

Join the Network

Member Benefits:

- Recognition in media, social media and publications
- Speaking opportunities
- Updates on latest trends
- Voluntary member initiatives
- One-on-One brainstorming conversations

Commitment:

- Members only need to provide *one number*: their organization's number of residential energy upgrades per year, or equivalent.

Upcoming Calls (2nd & 4th Thursdays):

- *4/27: Energy Efficiency and Demand Flexibility – Promoting and Scaling Grid-Interactive Efficient Buildings (GEBs)*
- *5/11: The Envelope Please...Lessons Learned from Home Performance with ENERGY STAR Award Winners*

Peer Exchange Call summaries are posted on the Better Buildings [website](#) a few weeks after the call



Angie Bivens
Franklin Energy



US Department of Energy

Low-Income Residential Energy Efficiency Best Practices

April 13, 2023



VISION STATEMENT

Powering tomorrow with clean, efficient,
and affordable energy

MISSION STATEMENT

Inspiring sustainable energy solutions for a
thriving environment and economy

About Us

The DESEU was created by the Legislature in 2007 to deliver energy efficiency and renewable energy services to Delaware households and businesses. We have an oversight Board with 11 members.

Funding Sources:

- Tax Exempt Financing
- Regional Greenhouse Gas Initiative (RGGI) Funds
- Fees for Services
- Interest on Loans

Factors of Program Success



Program Design

Creating & funding programs that offer energy efficient upgrades and education to LMI households



Partnerships

Working with companies and organizations that offer energy assistance or energy-related services



Outreach

Identifying areas and communities with high usage and/or energy burdened

Program Design



86
**Participating
Contractors
& Trade Allies**



**Best Practices
Working
Group (BPWG)**
6 members elected
by their peers, give
recommendations on
incentive levels,
rebate measures &
program updates



**Separate
assessment
contractors and
installation
contractors that
partner together
to deliver
services to
clients**



**Offers
workshops,
trainings and
conference
stipends to our
contractors**



**Our contractors
market and
grow
participation in
our program
and use our
program to
grow their
businesses.**

Partnerships



Focus on partners that fill in the “gaps” or provide complimentary programming



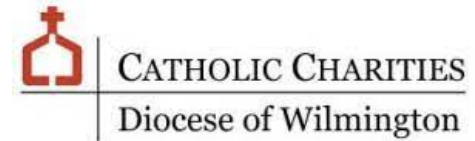
Held briefings with the partner program staff about our programs and benefits to their clients



Offered opportunities for subcontracting to perform check-ups or receive a fee for completed referrals

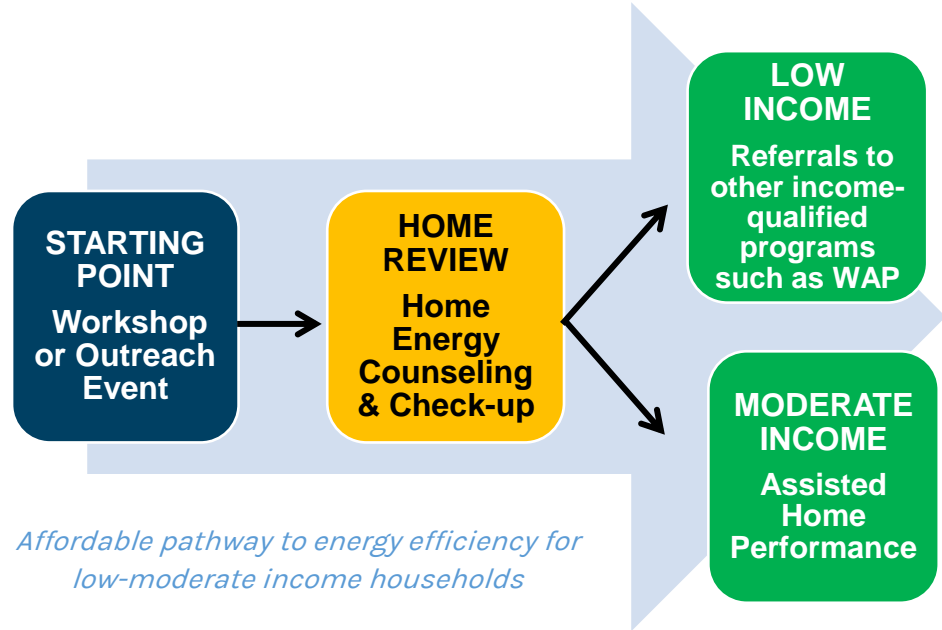


Utilized cross-promotions opportunities (i.e. websites, social posts, newsletters)



LMI Program Pathway

| Household Size | Maximum Annual Household Income |
|----------------|---------------------------------|
| 1 | 46,500 |
| 2 | 53,100 |
| 3 | 61,158 |
| 4 | 70,598 |
| 5 | 80,038 |
| 6 | 89,478 |
| 7 | 98,918 |
| 8 | 108,358 |



Our LMI Programs

| Household Size | Maximum Annual Household Income |
|----------------|---------------------------------|
| 1 | 46,500 |
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ENERGIZE DELAWARE

Home Performance with ENERGY STAR

Energy Checkups and Funding

The Assisted Home Performance with ENERGY STAR® Program is available to income-qualified Delawareans to receive a comprehensive home energy assessment and energy efficiency upgrades offered at significantly reduced costs.



ENERGIZE DELAWARE

Home Energy Checkups & Counseling

A Visit from an Expert

The HEC2 Program is designed to empower Delaware residents by providing access to high-quality energy-efficiency education, products and services including no cost workshops & in-home energy check-ups.

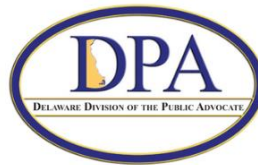


Pre-Weatherization Program

The Pre-Weatherization program helps low-income families in Delaware prepare their homes to meet the requirements and become “weatherization ready” for the State of Delaware’s Weatherization Assistance Program (WAP).

Empowerment Grant

The Empowerment Grant's vision is to implement impactful and innovative energy equity projects in underserved communities of all utility service providers that include direct investment, community outreach, education, and engagement.

**Exelon****delmarva
power**
AN EXELON COMPANY**Delaware Public Service Commission**

Meet Anna

- Elderly resident living in a mobile home in Southern Delaware
- Low-income with high utility bills & cold home
- Contacted our local partner, Habitat for Humanity, for assistance and started on the HPwES track with a free Home Energy Check-up



Before



Needs bathroom
renovations for
mobility issues



Home colder
due to worn
mobile skirting

After

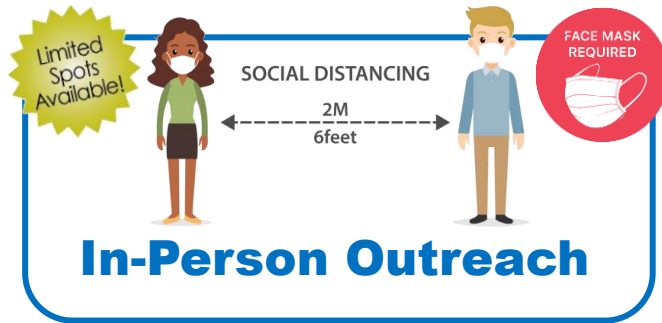


Received new shower
& new insulated skirting



Also new ENERGY STAR
fridge & new HVAC

Outreach Methods



- LMI Communities
- Elderly Housing Communities
- Public Assistance Recipients



- Those affected by COVID
- Disabled & Homebound
- Younger Generation/Social Savvy

In-person Outreach



Conservation
workshops for children
and adults



Events in LMI
Community creates
awareness and trust

Virtual Outreach



For more information about the Home Performance with ENERGY STAR program, call 877-524-1339 or visit [EnergizeDelaware.org/Performance](https://www.EnergizeDelaware.org/Performance)

LET'S TALK ENERGY

**WITH LT. GOVERNOR
BETHANY HALL-LONG**

Interview with Lt. Governor Hall-Long to discuss her upcoming energy initiatives

WATCH LIVE ON
facebook. & YouTube on Feb 3 at 2pm

**ENERGIZE
DELAWARE**
Energy Savings Programs

LIVE



Includes guest presenters &
local programs

2022 HEC² Program Statistics

“Needless to say, this [HEC²] program has been a true Godsend and provided me with **many ways to cut my energy cost** as well as useful referrals. I now have a **brand new**



new fridge and every light bulb was replaced with energy saving LEDs. Kudos to Energize Delaware and its service to seniors like myself.”

- Mary, HEC² program participant

**621**

Home Energy Check-ups
for low-moderate income
households

**915**

Average Kilowatts of
energy saving after
Home Energy Check-up

**\$2,500**

Total bill credits
to Chesapeake
Utilities

customers that had a Home Energy Check-up

**30**

Energy Conservation
Workshops held across the
state for adults & children

**305**

Free energy-saving
Weatherization Kits
mailed to Delawareans

**7,548**

Free LED bulbs
provided by
Delmarva Power &
given at events

**15,000+**

Views on
Facebook of
the monthly
tapings teaching energy conservation & more.



Thank You for Attending!

For program information visit
www.EnergizeDelaware.org

Suzanne Sebastian, *Deputy Executive Director*
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Angie Bivens, *Outreach Manager*
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Ben Cooper
StopWaste

Redesigning multifamily incentives to center renters <> equity

Low-Income Residential Energy Efficiency Best Practices

Part 2

April 13, 2023



Who/what is StopWaste?

- Founded 1976 as ACWMA, 2013 Energy Council approved as a JPA
- Countywide public agency with 17 member agencies representing Alameda County, its 14 cities, and 2 sanitary districts
- We help ALCO businesses, residents, and schools waste less, recycle properly and use water, energy and other resources efficiently
- Administers the BayREN Multifamily (BAMBE) and Green Labeling programs



Who/what is BayREN?

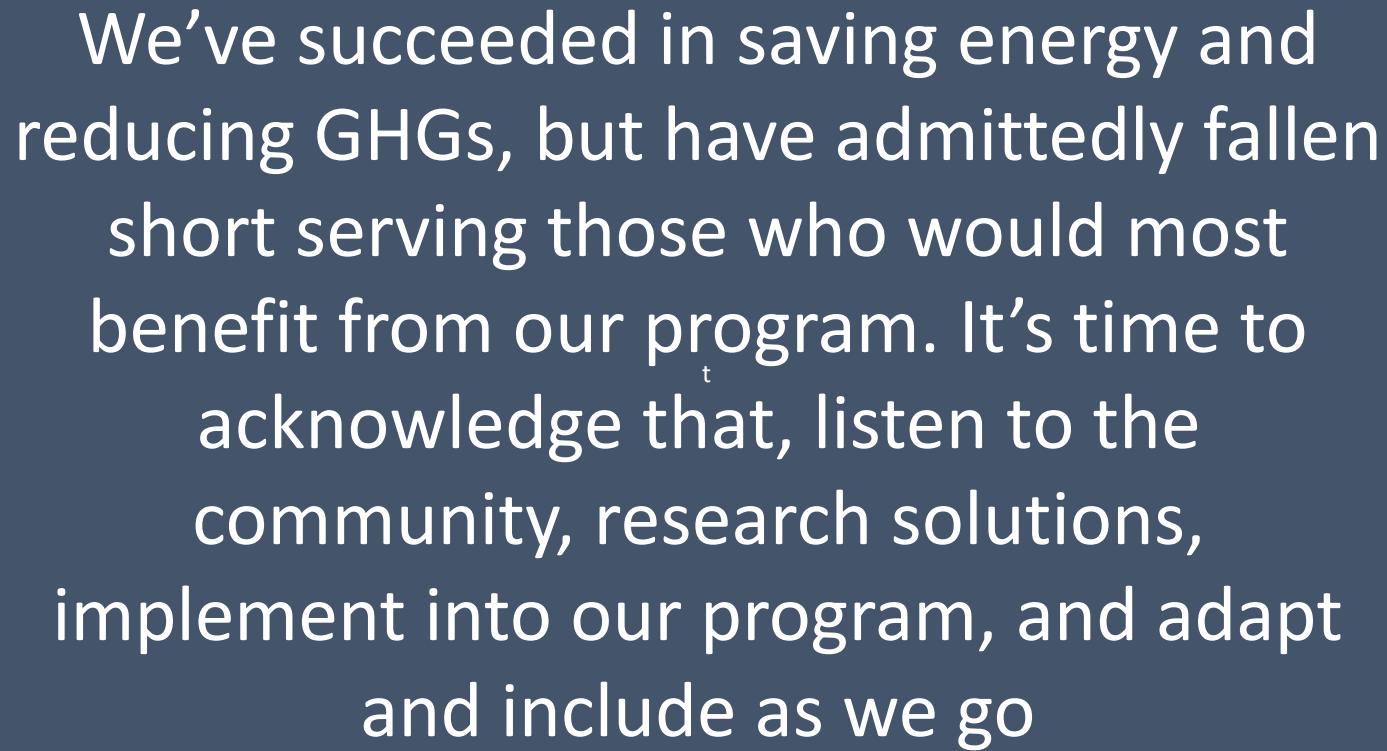
- Founded 2013, collaboration of 9 Bay Area counties partnering to promote resource efficiency focused on energy, water and greenhouse gas reduction
- RENS have unique directives to fill gaps that utilities are not serving, develop programs for hard-to-reach communities, and pilot innovative and scalable initiatives.



BAMBE to date

- Program launched in 2014
- No-cost energy consulting/TA and significant incentives
- Upgraded 45k+ units across 600+ multifamily properties
- \$34+ million in direct rebates
- Mostly served deed-restricted or higher end market rate rental, NOT unsubsidized affordable housing (UAH)





We've succeeded in saving energy and reducing GHGs, but have admittedly fallen short serving those who would most benefit from our program. It's time to acknowledge that, listen to the community, research solutions, implement into our program, and adapt and include as we go

Unsubsidized Affordable Housing Listening sessions

- What is UAH? Market-rate housing w rents below the area median. Often smaller, independently owned, with deferred maintenance and old/original energy systems and appliances (Formerly NOAH, naturally-occurring affordable housing)
- We've fallen short serving folks in UAH, substantial part of Bay Area residents
- In 2022, partnered with trusted local CBOs to host listening sessions with UAH renters and owners in SMC and uninc. ALCO
- El Concilio and Nuestra Casa in SMC and community organizers Les Morones and Leo Esclamado in ALCO



What we learned about UAH from owners

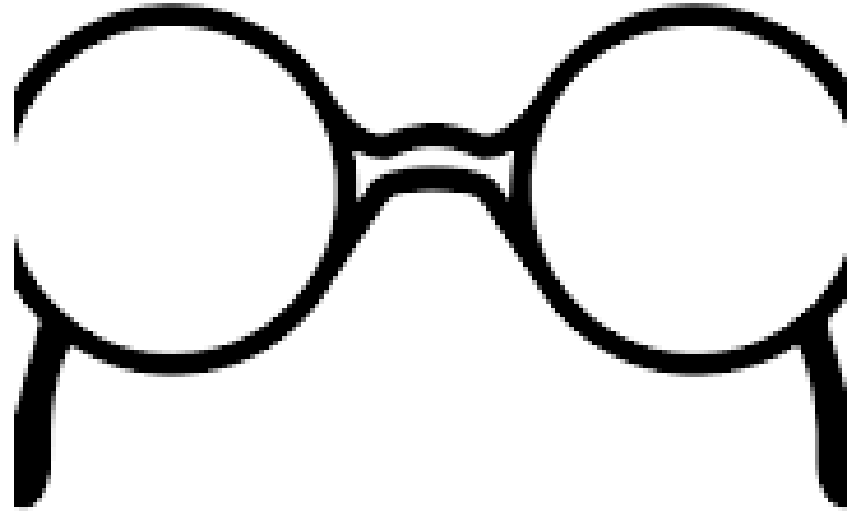
- Often “mom and pop”
- Fear nonpayment of rent
- Renters don’t want to provide in-unit access
- Property managers feel tension



2023 Incentive Redesign

Centering equity

1. Identifying which specific building upgrades offered through BAMBE can reduce burdens experienced inequitably throughout the region,
2. Providing higher incentives for properties located in those overburdened regions when the scope of work includes upgrades that can reduce the impact of those burdens,
3. Providing higher incentives for in-unit measures that improve comfort and safety for properties located in regions that have historically been “underserved” by energy efficiency programs.



Incentive Structure

- *OLD: \$750 per unit 10% savings achieved by minimum 3 measures, with separate pathway for electrification*
- **NEW**

| Basic Package | Rebate | Amount | Eligible Measures |
|---------------|--------|----------------|---|
| | Base | \$500 per unit | All eligible energy efficiency measures |

Bonus Adders

Electrification

Health Burden

Heat Burden

Housing Burden

Adders

| Adder | Description | Data used |
|----------------------------------|--|--|
| Electrification | Additional incentives are offered for gas-to-electric upgrades that result in reduced GHG emissions. | NA |
| Health Burden | Properties in specific “Health Burdened” geographic zones will receive additional incentives for in-unit upgrades that improve indoor air quality. | Asthma rates Air pollution |
| Resilience (to High Heat) | Properties in specific “High Heat Burdened” geographic zones will receive additional incentives for in-unit upgrades that help residents be more resilient to extreme heat events. | High heat days Percent impervious surface |
| Housing Burden | Properties in specific “Housing Burdened” geographic zones will receive additional incentives for certain in-unit upgrades. | Housing burden (ACS, CES4.0) |

Eligibility Lookup Tool

BAMBE Bonus Eligibility Lookup Tool



324 Warwick Ave, Oakland, CA, 94610, USA

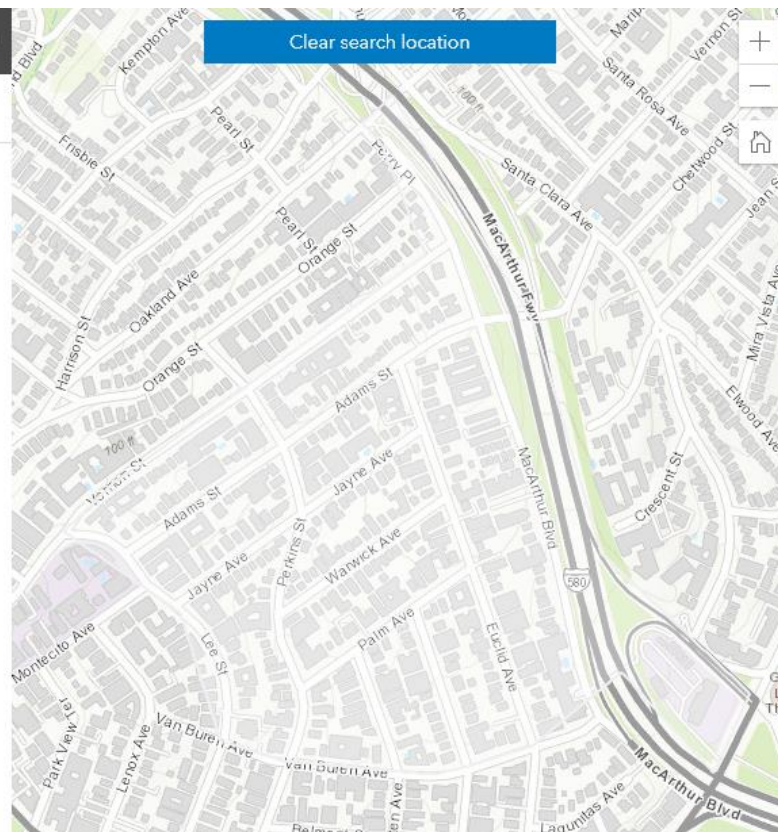


Results:1

Information

| | |
|--------------------------|----------------|
| County | Alameda County |
| Health Qualifier | Qualified |
| Housing Burden Qualifier | Qualified |
| Resilience Qualifier | Not Qualified |

Clear search location



Electrification Adder

| Eligibility | Eligible Measures | Rebate Amount |
|---|-------------------------------------|---|
| All properties in BayREN territory are eligible | In-unit Heat Pump Water Heater | \$1500 per apartment upgraded |
| | In-unit Heat Pump HVAC | \$1500 per apartment upgraded |
| | In-unit Laundry Dryer | \$250 per apartment upgraded |
| | In-unit Electric Cooking | \$750 per apartment upgraded |
| | Central Heat Pump Water Heater | \$1000 per apartment served* |
| | Central Heat Pump HVAC | \$1000 per apartment served |
| | Common Area Heat Pump HVAC | \$1000 per equipment |
| | Laundry/Common Area HP Water Heater | \$1000 per equipment |
| | Heat Pump Pool Heater | \$1000 per pool/spa |
| | Panel Upgrades** | Up to \$1500 per unit for subpanel & up to \$5000 /property for central/common area |

Health Burden Adder

| Eligibility | Eligible Measures | Rebate Amount |
|--|---------------------------------------|---------------|
| Only properties located in “Health Burdened” priority zone | Windows | \$500/ unit |
| | In-unit Heat Pump HVAC (MSHps/ PTHPs) | |
| | In-unit Laundry Dryer | |
| | In-unit Electric Cooking | |
| | Residential Heat Pump Water Heater | |

High Heat Burden Adder

| Eligibility | Eligible Measures | Rebate Amount |
|--|--|---------------|
| Only properties located in “Heat Burdened” priority zone | Windows | \$500/ unit |
| | In-unit Heat Pump HVAC (MSHps/ PTHPs) | |
| | Wall Insulation/ Attic Insulation/ Roof Insulation/ Crawlspace Insulation/ Floor Insulation/ Cool Roof | |

Housing Burden Adder

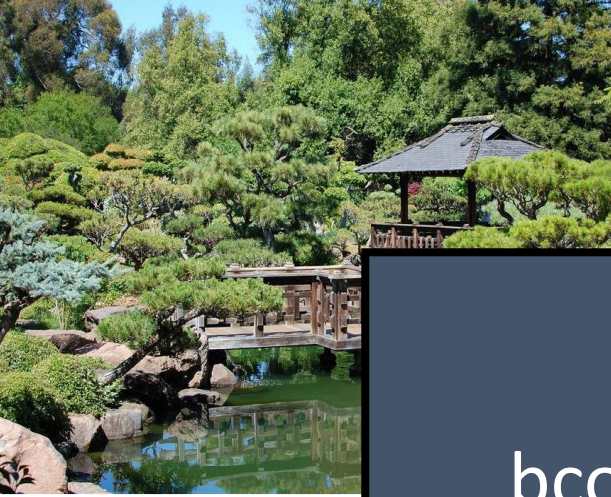
| Eligibility | Eligible Measures | Rebate Amount |
|---|---|---------------|
| Only properties located in “Housing Burdened” priority zone AND Has <50 units and built pre-2010, or deed-restricted affordable property | A) 1.5x increase to total rebate OR 2X increase if scope includes wall insulation and/or window upgrades | |
| | B) Up to \$500 reimbursable per unit for refrigerators, dishwashers, in-unit washing machines, lighting, in-unit duct sealing, in-unit duct insulation, and/or smart thermostats | |

Striving for....

- Fund non-energy maintenance and repairs to increase pride and sense of place, fund landscaping/permaculture to connect residents to land
- Better/more granular tracking of who we're serving
- Keep movin' on up!







Thank you!

bcooper@stopwaste.org

510-891-6511





Jackie Zusi-Russell
Earth Advantage

APRIL 13, 2023

USING HOME ENERGY SCORE TO LESSEN ENERGY BURDENS IN LOW INCOMES COMMUNITIES

PRESENTED BY

Jackie Zusi-Russell

RESIDENTIAL ENERGY CONSULTANT



earthadvantage.

HELLO!!

I'm **Jackie Zusi Russell**,
Residential Energy
Consultant at
Earth Advantage

PICTURE COURTESY OF COMMUNITY ENERGY PROJECT



HES AS AN EDUCATIONAL TOOL FOR HOMEOWNERS

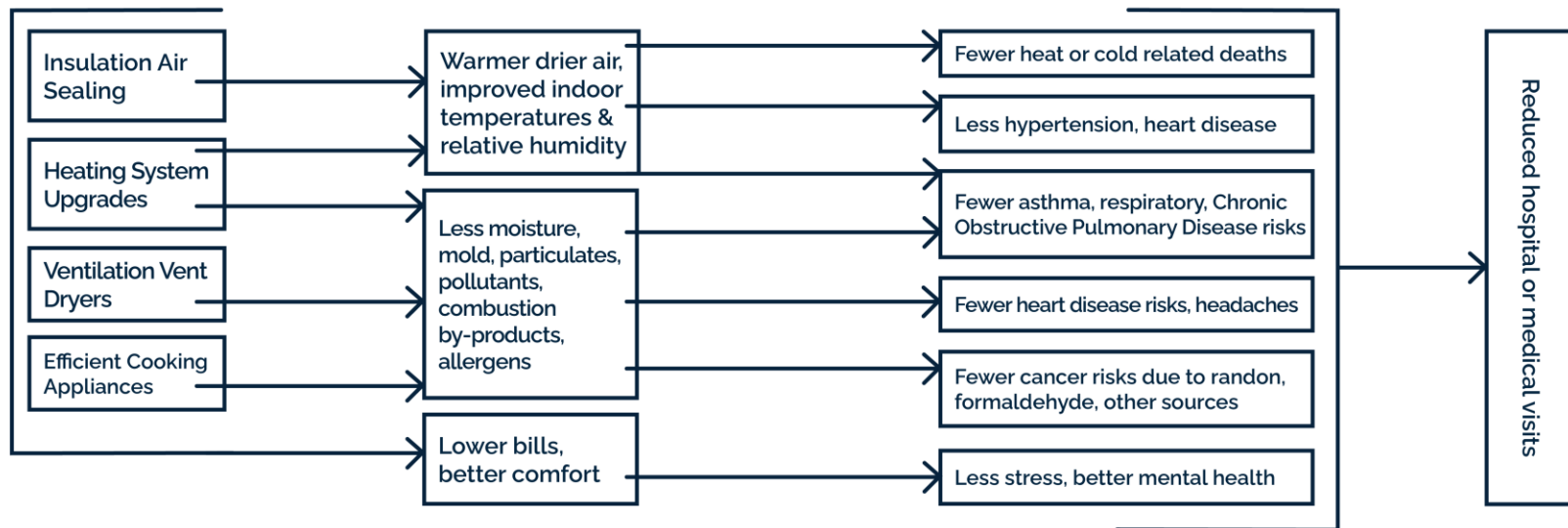
-
- Helps homeowners understand how their home operates
 - Highlights rebates and incentive programs for upgrades

HES AS A TOOL FOR PROGRAMS

-
- Quick and easy data collection
 - Assists in creation of SOW and prioritizing upgrade measures
 - Aids marketing efforts targeting historically lower income communities

EE UPGRADES FOR HEALTH & SAFETY

A white paper published by E4 The Future evaluating EE programs and health impacts of weatherization work in low income housing show a 12% decline in asthma-related emergency service use, 9% decrease in persistent colds, 13% less eczema and allergies, and greater than \$400 decline in annual Medicaid costs and fewer Medicare claims.

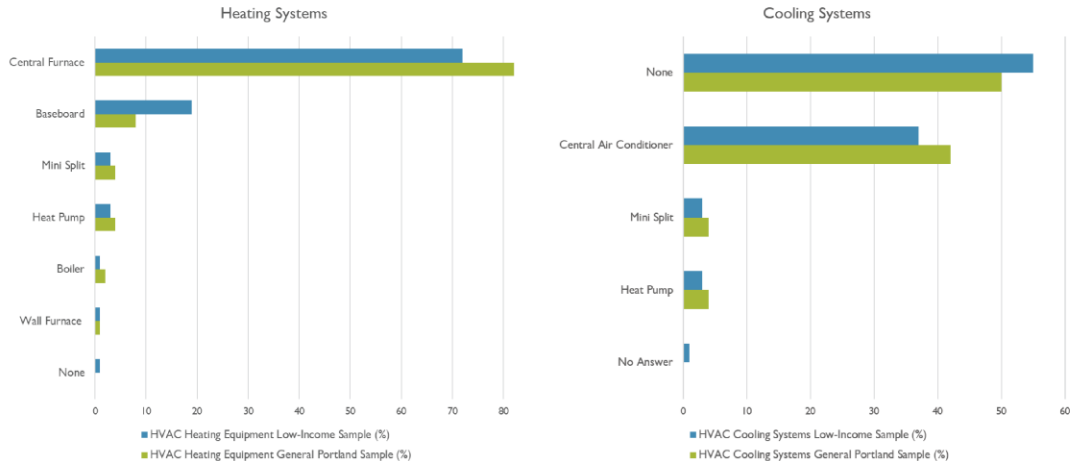


EE UPGRADES FOR HEALTH & SAFETY

Extreme heat
is a growing
concern in
the PNW

- In Portland, OR 53% of homes have central AC installed, with a median efficiency of 13 SEER.
- Significantly more AC is installed in the coolest parts of town. Spatial hot spot analysis shows that AC is more clustered in higher
- income areas.

Source: Pacific Northwest National Laboratory, publication pending



BARRIERS TO EE UPGRADES

-
- Funding does not address deferred maintenance
 - Rebates/ incentives not available for fuel switching



EARTH ADVANTAGE & PORTLAND CLEAN ENERGY FUND

① Grantee's submit projects for review

② QA Provider review's project work scope and provide feedback as needed

③ QA Provider approves scope of work

④ QA Provider available for ongoing mentoring to Grantees
Performing energy audits, developing scopes of work, project management, and during post install review

⑤ Grantee requests Final Review/QA

⑥ QA Provider schedules and conducts final review

⑦ QA Provider works with Grantee if corrections are needed and provides follow up

⑧ QA Provider creates final report

THANK YOU.

APRIL 13, 2023

Jackie Zusi-Russell

RESIDENTIAL ENERGY CONSULTANT

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earthadvantage.

Smart Tools for Efficient HVAC Performance (STEP) Campaign



Scan this QR code to visit our website

Contact: christian.valoria@pnnl.gov

The STEP Campaign aims to increase adoption of **smart diagnostic tools** to streamline HVAC system performance testing and troubleshooting, **reducing energy-wasting faults** and **improving occupant comfort**.

To join the STEP Campaign, visit: bit.ly/3DFmEaE



HVAC Contractors and Technicians

- Reduce callbacks, improve consistency and quality, streamline processes
- Find out where to get training on smart diagnostic tools
- Be recognized for successful adoption of smart diagnostic tools!



Utilities and Program Implementers

- Streamline quality installation and quality maintenance programs
- Improve engagement with your contractors
- Be recognized for programs that utilize smart diagnostic tools!



HVAC Training Organizations

- Offer qualified training on System Performance with smart diagnostic tools
- Promote your training events
- Be recognized for providing training!



Weatherization Organizations

- Ensure your ASHP/CAC installations are operating at optimized efficiency
- Develop pilot with PNNL team
- Be recognized!

ORGANIZING PARTNERS

Buildings UP

The Buildings Upgrade Prize

AMERICAN
MADE
U.S. DEPARTMENT OF ENERGY

Building capacity to transform U.S. buildings into energy-efficient and clean energy-ready homes, commercial spaces, and communities

Upgrading existing buildings to efficiently run on clean energy will help address climate change. This means transitioning **residential and commercial buildings** to efficient electric equipment, such as **heat pumps and heat pump water heaters**, and ensuring comfort with measures such as **insulation and air sealing**.

Teams participating in **Buildings UP** will develop innovative plans to leverage the billions of dollars through the Bipartisan Infrastructure Law, the Inflation Reduction Act, utility rebate programs, and many other funding sources available and capitalize on this unprecedented opportunity to improve our homes, businesses, and communities.

Buildings UP will award more than **\$22 million** in cash prizes and expert technical assistance to bring winning ideas to life.



www.heroX.com/buildingsUP

Form Your Team and Submit Your Application by July 2023!

- Community-based organizations
- Local governments
- Utilities
- Non-profit organizations
- For-profit energy efficiency companies
- and more!

Multi-stakeholder teams are encouraged

Application support available for new and under-resourced teams

Follow Buildings UP on HeroX for prize info and updates
Questions: buildingsUP@nrel.gov

Explore the Residential Program Guide

Resources to help improve your program and reach energy efficiency targets:

- [Handbooks](#) - explain *why* and *how* to implement specific stages of a program.
- [Quick Answers](#) - provide answers and resources for common questions.
- [Proven Practices](#) posts - include lessons learned, examples, and helpful tips from successful programs.
- [Technology Solutions](#) **NEW!** - present resources on advanced technologies, **HVAC & Heat Pump Water Heaters**, including installation guidance, marketing strategies, & potential savings.
- [Health + Home Performance Infographic](#) – spark homeowner conversations.



<https://rpssc.energy.gov>

Health + Home Performance Infographic



DOE’s new Health + Home Performance Infographic reveals the link between efficiency and health – something everyone cares about. Efficiency programs and contractors can use the question-and-answer format to discover a homeowner’s needs.

The infographic is ideal for the “kitchen table” conversations where people decide what to do – and who they want to do it. It also has links for homeowners to find a qualified contractor if they do not already have one.

[Download](#) this infographic from DOE’s Better Buildings Residential Network.

Looking for photos to help tell your energy efficiency story? Visit our image libraries:
<https://www.energy.gov/eere/better-buildings-residential-network/articles/image-libraries>

Thank You!

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Please send any follow-up questions
or future call topic ideas to:
bbresidentialnetwork@ee.doe.gov